

## **VERIZON RESPONSE TO NJ BPU KPMG EXCEPTION**

<b>Exception #:</b>	12
<b>Component:</b>	<b>Verizon-New Jersey's (VZN-NJ) metrics data archival procedures are insufficient for the Caseworker system.</b>
<b>Domain:</b>	Metrics
<b>Date Uncovered by KPMG:</b>	1/9/01
<b>Date VERIZON Received:</b>	1/9/01
<b>Date VERIZON Responded:</b>	1/31/01
<b>KPMG Summary Statement</b>	<b>VZN-NJ did not properly archive Caseworker data. Without this archived data, VZN-NJ cannot demonstrate that published Carrier-to-Carrier Reports are accurate.</b>
<b>KPMG Consulting Response:</b>	<p><b><u>KPMG Consulting 2/28/01 Reply to Verizon's 1/31/01 Response</u></b></p> <p>The response received on 1/31 by KPMG Consulting from Verizon outlined policy improvements that will mitigate the chance of a re-occurrence of the loss of CaseWorker metrics data. In the absence of any other activity or information, KPMG Consulting closes Exception # 12 for testing purposes.</p> <p>Those improvements focused on the following:</p> <ul style="list-style-type: none"><li>▪ Move the CaseWorker metrics processing job from the testing to the production environment in the Verizon Data Center.</li><li>▪ Improve internal controls to ensure that the daily back-up of CaseWorker metrics data completes successfully.</li></ul> <p>In order to verify that the policy changes were instituted as outlined, KPMG Consulting requested, received and reviewed additional documentation to substantiate the claims made in the Verizon response to Exception #12:</p> <ul style="list-style-type: none"><li>▪ Documentation substantiating CaseWorker metrics processing in the Verizon production environment – A contributing factor to the loss of CaseWorker metrics data was the previous practice in Verizon of running the metrics processing job in their test environment. Verizon provided KPMG Consulting with a copy of the Production Batch Scheduling report for the CaseWorker metrics (job R2S_Start_Process). This report illustrates the start and successful completion of the production job on the morning of 2/14/01.</li><li>▪ Documentation substantiating the improved procedure to back-up CaseWorker metrics data – An additional contributing factor to the loss of CaseWorker metrics data were internal controls that were inadequate to ensure that the job to make a back-up copy of CaseWorker metrics data ran and completed successfully. Verizon provided KPMG Consulting with a copy of the log of the Sybase database back-up utility for the period 2/12 through 2/14/01. The hardcopy log demonstrates that</li></ul>

the database containing the CaseWorker metrics ("XLVWMEMS") was backed-up successfully each day.

**VERIZON Response:** **1/31/01 Response to Exception.**

Verizon has conducted a thorough investigation and review of this issue and put in place new processes to prevent future occurrences.

**The Cause:**

On December 12<sup>th</sup>, the Caseworker server had a hardware failure on a disk drive in the performance test environment. This disk drive hosted the CaseWorker Metrics database which stores the raw data used to produce the **MR1-1-01** through **MR1-1-05** reports. When the Caseworker team attempted to recover the data from the last backup, from the previous night, it was identified that the database backups had been running, but not finishing to a successful completion. Therefore, the required data was not available on the back up. Due to this failure, Verizon was unable to recover the raw data for the Month of November and the first week of December for CaseWorker MR1 metrics.

**The Metrics Impact of the Lost Data:**

The data that was lost is the raw data for November and the first week of December for **MR-1-01** through **MR-1-05**. Verizon does have the data for the daily summary reports for those time periods. The impact is that KPMG can't replicate the report based on the raw data for that time period.

**The Issue:**

The cause for this problem was the fact that the controls in the performance test environment were not sufficient to ensure successful completion of the backups. As a result of the backup failure, Verizon immediately determined that the metrics process should be moved into the production environment where the data is mirrored on EMC disk drives (the most reliable disk drives on the market), database backups are verified, the operations team monitors servers, and all changes are managed under change control guidelines.

**The Resolution:**

After this problem was identified, Verizon quickly started the work to move the metrics collection and processing scripts to the Caseworker production environment. The VIPS team (Verizon Information Processing Services) held a design review of the new process on 12/27 to ensure that it met production guidelines for processing, control and backup and recovery. After the VIPS review, the metrics process was scheduled for implementation in production. This production move was completed on January 8<sup>th</sup>, 2001. The Caseworker metrics collection and processing now runs on production datacenter servers. The Production environment architecture also provides additional redundancy by replicating a copy of the data to a secondary fail-over server.

The VIPS team has processes in place that ensure:

- ◆ Nightly metrics batch jobs complete successfully, callout and escalation procedures are in place to handle any failures of the jobs.

- ◆ Nightly database backups complete successfully.
- ◆ Nightly Unix file system backups complete successfully.
- ◆ Unix servers and databases are monitored to ensure they are online and functioning properly.
- ◆ Any changes to the production systems are managed under production change control guidelines.

An internal IT review of the process was conducted on 1/18/2001 with the Executive Director responsible for Caseworker in Network and National Operations Systems and with VIPS operations personnel. This was to ensure that the new process was functioning properly. At that time, the backup procedures were also reviewed and verified for completeness. A summary of the new process flow and the production metrics backup flow is included in this response.

Based on this migration of the metrics process to production and the new processes instituted, there should not be another problem of this type.

**The following information describes processes now in place to recover data in the event of a future similar failure for Caseworker.**

**NJ Exception Report #12 Scenario:**

**In this case, the database containing the metrics data was lost due to a disk failure. If this data were lost, the following would be done to retrieve the data:**

- ◆ Firstly, the disks are mirrored so this would have to be a multi disk fault for actual data to be lost.
- ◆ Second, the databases are all replicated to the secondary application/data server, so immediate access to the data would be available on the secondary machine where there is a secondary copy of the database.
- ◆ On the primary machine, the disks would be replaced by the vendor and initialized.
- ◆ The database dump from the previous night would be re-loaded from disk or from tape onto the new disk drives. There are two copies of this database dump (from both the primary and backup server).

The primary database would be brought back online.